WHAT IS CLAIMED IS:

1. A light emitting device comprising:

a phosphor layer having two opposing sides including one or more excitable, light-emitting phosphors;

a radiation source positioned adjacent a first one of the two opposing sides of the phosphor layer for providing a radiation to excite a light emission from the phosphor layer, the radiation source having a first contact region and a second contact region; and

reflector means provided adjacent a second one of the two opposing sides of the phosphor layer for reflecting at least some of the radiation and light emission that exits from the phosphor layer back into the phosphor layer.

2. A light emitting device according to claim 1, wherein said reflector means comprises a first contact layer positioned over at least part of the phosphor layer, the first contact layer being at least partially reflective and at least partially electrically conductive, said first contact layer being electrically connected to the first contact region.

3. A light emitting device according to claim 2, further comprising a second contact layer that is electrically connected to the second contact region.

4. A visible light emitting device comprising:

a transparent substrate;

a phosphor layer including one or more excitable, visible light-emitting phosphors;

a radiation source positioned between the transparent substrate and the phosphor layer for providing a radiation to excite visible light emission from the phosphor layer, the radiation source having a first contact region and a second contact region;

a first contact layer provided over at least part of the phosphor layer and reflecting at least some of the radiation that travels through the phosphor layer back into the phosphor layer, the first contact layer being electrically connected to the first contact region; and

a second contact layer being electrically connected to the second contact region.

5. A visible light emitting device according to claim 4, wherein said phosphor layer includes one or more UV-excitable, visible light-emitting phosphors, and said radiation source is a UV radiation source emitting ultraviolet radiation.

6. A visible light emitting device according to claim 5, further including a UV mirror for reflecting UV radiation, the UV mirror being positioned between the UV radiation source and the transparent substrate and being at least partially transparent to visible light.

7. A visible light emitting device according to claim 4, wherein the radiation source has a top surface, one or more side walls, and a lower portion that extends laterally outward from the one or more side walls, said phosphor layer being positioned between at least part of the top surface of the radiation source and the first contact layer.

8. A visible light emitting device according to claim 7, wherein the first contact layer extends over at least part of the top surface and down at least part of selected side walls of the radiation source.

9. A visible light emitting device according to claim 8, wherein the radiation source includes a first portion that is of a first conductivity type and a second portion that is of a second conductivity type, with an active region therebetween.

10. A visible light emitting device according to claim 9, wherein the first portion of the radiation source is at least partially in the region defined by the top surface and the one or more side walls of the radiation source, and the second portion is at least partially in the lower portion of the radiation source that extends laterally outward from the one or more side walls.

11. A visible light emitting device according to claim 10, wherein the second portion of the radiation source corresponds to the second contact region.

12. A visible light emitting device according to claim 11, wherein the phosphor layer and the first contact layer do not overlap the second portion of the radiation source in an open region, said second contact layer making an electrical connection to the second portion of the radiation source in the open region.

13. A visible light emitting device according to claim 12, wherein the phosphor layer is an elongate phosphor strip having a length and a width, the length of the phosphor layer aligned with the radiation device in a first direction.

14. A visible light emitting device according to claim 13, wherein the first contact layer is an elongate strip having a length and a width, the length of the first contact layer aligned with the elongate phosphor strip.

15. A visible light emitting device according to claim 14, wherein the second contact layer is an elongate strip having a length and a width, the length of the second contact layer aligned with the radiation device in a second direction, wherein the second direction is perpendicular to the first direction.

16. A visible light emitting device according to claim 15, wherein the second contact layer is positioned above the first contact layer and separated therefrom by an insulating layer.

17. A visible light emitting device according to claim 4, wherein the first contact layer is formed from, at least in part, aluminum.

18. A visible light emitting device according to claim 4, wherein the radiation source is a GaN-based light emitting diode.

19. A visible light emitting device according to claim 18, wherein the transparent substrate is formed from, at least in part, sapphire.

20. A visible light emitting device according to claim 18, wherein one or more excitable, visible light-emitting phosphors, produces a visible light emission having a color that is selected from the group consisting of red, green, and blue.

21. A visible light emitting device comprising:

a transparent substrate;

a phosphor layer including one or more excitable, visible light-emitting phosphors;

a radiation source positioned between the transparent substrate and the phosphor layer for providing a radiation to excite visible light emission from the phosphor layer, the radiation source having a first contact region and a second contact region;

a first contact layer provided over at least part of the phosphor layer and reflecting at least some of the visible light emission from the phosphor layer back toward the transparent substrate, the first contact layer being electrically connected to the first contact region; and

a second contact layer being electrically connected to the second contact region.

22. A visible light emitting device according to claim 21, wherein said phosphor layer includes one or more UV-excitable, visible light-emitting phosphors, and said radiation source is a UV radiation source.

23. A light emitting device comprising:

a radiation source having a first contact region and a second contact region for providing radiation, said radiation source having a top surface and one or more side walls;

a phosphor layer provided adjacent to at least a portion of the one or more side walls of the radiation source, the phosphor layer including one or more excitable, light-emitting phosphors that produce a light emission when excited by the radiation.

24. A light emitting device according to claim 23, further comprising:

a transparent substrate positioned below the radiation source;

a first contact layer for providing an electrical connection to the first contact region of the radiation source; and

a second contact layer for providing an electrical contact to the second contact region of the radiation source.

25. A light emitting device according to claim 24, wherein said phosphor layer includes one or more UV-excitable, visible light-emitting phosphors, and said radiation source is a UV radiation source.

26. A light emitting device according to claim 24, wherein the radiation source has a bottom portion that has a first conductivity, a top portion that has a second conductivity, and an active region therebetween.

27. A light emitting device according to claim 26, wherein the bottom portion has a larger base region and an upper column region, the upper column region defining at least a lower portion of the one or more side walls of the radiation source.

28. A light emitting device according to claim 27, wherein the top portion of the radiation source defines an upper portion of the one or more side walls of the radiation source.

29. A light emitting device according to claim 28, wherein the bottom portion of the radiation source corresponds to the first contact region of the radiation source.

30. A light emitting device according to claim 29, wherein the bottom portion of the radiation source is an N-type semiconductor.

31. A light emitting device according to claim 29, wherein the top portion of the radiation source corresponds to the second contact region of the radiation source.

32. A light emitting device according to claim 31, wherein the phosphor layer only extends laterally away from the side walls of the radiation source a selected distance, at least in one direction, to define a top wall and one or more side walls.

33. A light emitting device according to claim 32, further comprising a first contact layer, the first contact layer being provided over at least part of the top wall of the phosphor layer.

34. A light emitting device according to claim 33, wherein the first contact layer is provided over at least part of the one or more side walls of the phosphor layer.

35. A light emitting device according to claim 34, wherein the first contact layer is electrically connected to the bottom portion of the radiation source.

36. A light emitting device according to claim 33, wherein the first contact layer reflects UV radiation.

37. A light emitting device according to claim 33, wherein the first contact layer reflects visible light.

38. A light emitting device according to claim 33, wherein the first contact layer is formed from, at least in part, aluminum.

39. A light emitting device according to claim 33, further comprising a second contact layer, the second contact layer electrically connected to the top portion of the radiation source.

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40. An array of visible light emitting devices, comprising:

a transparent substrate;

an array of phosphor segments, each including one or more excitable, visible light-emitting phosphors;

an array of radiation sources positioned between the transparent substrate and the array of phosphor segments for selectively providing radiation to excite visible light emission from corresponding phosphor segments, each of the radiation sources having a first contact region and a second contact region;

a number of column contact layers, each of the column contact layers being provided over at least part of the phosphor segments of the radiation sources that lie in a corresponding column of the array of radiation sources, the column contact layers reflecting at least some of the radiation that exits from the corresponding phosphor segments back into the phosphor segments, the column contact layers being electrically connected to the first contact regions of the radiation sources that lie in the corresponding column; and

a number of row contact layers, each of the row contact layers being electrically connected to the first contact regions of the radiation sources that lie in a corresponding row of the array of radiation sources.

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41. An array of visible light emitting devices according to claim 40, wherein the column contact layers also reflect at least some of the visible light emission from the corresponding phosphor segments.

42. An array of visible light emitting devices according to claim 41, wherein selected radiation sources of the array of radiation sources have side walls that face adjacent radiation sources, said column contact layers extending adjacent at least a portion of selected side walls to help reduce optical cross talk between the radiation sources.

43. An array of visible light emitting devices according to claim 42, wherein selected phosphor segments also extend along at least a portion of selected side walls of selected radiation sources, between the side walls and the corresponding column contact layers.